

WHAT IS CLAIMED IS:

1. A vector particle having a modified viral surface protein for targeting the vector particle to an extracellular matrix component, wherein said viral surface protein is modified to include a targeting polypeptide including a binding region which binds to an extracellular matrix component.

2. The vector particle of Claim 1 wherein said vector particle is a retroviral vector particle and the modified viral surface protein is a modified retroviral envelope.

3. The retroviral vector particle of Claim 2 wherein said retroviral envelope includes a receptor binding region, wherein said receptor binding region is modified to include a targeting polypeptide including a binding region which binds to an extracellular matrix component.

4. The retroviral vector of Claim 3 wherein prior to modification the receptor binding region of said envelope has the sequence (SEQ ID NO:1), and in the modified polypeptide the targeting polypeptide is inserted between amino acid residues 18 and 19 of (SEQ ID NO:1).

5. The retroviral vector of Claim 2 wherein said extracellular matrix component is collagen.

6. The retroviral vector of Claim 5 wherein said binding region which binds to collagen has the following structure:

Trp-Arg-Glu-Pro-Ser-Phe-Met-Ala-Leu-Ser (SEQ ID NO:3).

7. A modified polynucleotide encoding a modified viral surface protein for targeting a vector to an extracellular matrix component, wherein the modified polynucleotide includes a polynucleotide encoding a targeting polypeptide, said targeting polypeptide including a binding region which binds to an extracellular matrix component.

8. The modified polynucleotide of Claim 7 wherein said modified polynucleotide encodes a modified retroviral envelope polypeptide.

9. The modified polynucleotide of Claim 8 wherein said retroviral envelope polypeptide includes a receptor binding region, wherein, in the modified polynucleotide, the polynucleotide encoding the receptor binding region is modified to include a polynucleotide encoding a targeting polypeptide including a binding region which binds to an extracellular matrix component.

10. The modified polynucleotide of Claim 9 wherein, prior to modification, the polynucleotide encoding the receptor binding region encodes a receptor binding region having the sequence (SEQ ID NO:1) and in the modified polynucleotide, said polynucleotide encoding said targeting polypeptide is inserted between the codon encoding amino acid residue 18 and the codon encoding amino acid residue 19.

11. A producer cell for producing a retroviral vector particle having a modified envelope polypeptide, said producer cell including the modified polynucleotide of Claim 8.

12. The retroviral vector particle of Claim 2 and further including at least one polynucleotide encoding a therapeutic agent.

13. A method of effecting a gene therapy treatment in a host, comprising:

administering to a host the retroviral vector particles of Claim 12 in an amount effective to produce a therapeutic effect in said host.

14. A modified retroviral envelope polypeptide wherein, prior to modification, the envelope includes a polypeptide having the sequence (SEQ ID NO:1), and wherein, in the modified envelope, a targeting polypeptide including a binding region which binds to an extracellular matrix component is inserted between amino acid residue 18 and amino acid residue 19 of (SEQ ID NO:1).

15. The polypeptide of Claim 14 wherein said binding region binds to collagen.

16. The polypeptide of Claim 15 wherein said binding region which binds to collagen has the following structure:

Trp-Arg-Glu-Pro-Ser-Phe-Met-Ala-Leu-Ser (SEQ ID NO:3).

17. A retroviral plasmid vector including the modified polynucleotide of Claim 8.

18. A method of generating retroviral vector particles, comprising:

(a) transfecting a cell line selected from the group consisting of (i) a pre-packaging cell line including polynucleotides encoding the gag and pol retroviral proteins; and (ii) a packaging cell line including polynucleotides encoding the gag, pol, and env retroviral proteins with the retroviral plasmid vector of Claim 17 to form a producer cell line; and

(b) culturing said producer cell line to generate retroviral vector particles.

19. A proteoliposome including a wall, wherein said wall of said proteoliposome includes a targeting polypeptide including a binding region which binds to an extracellular matrix component.